

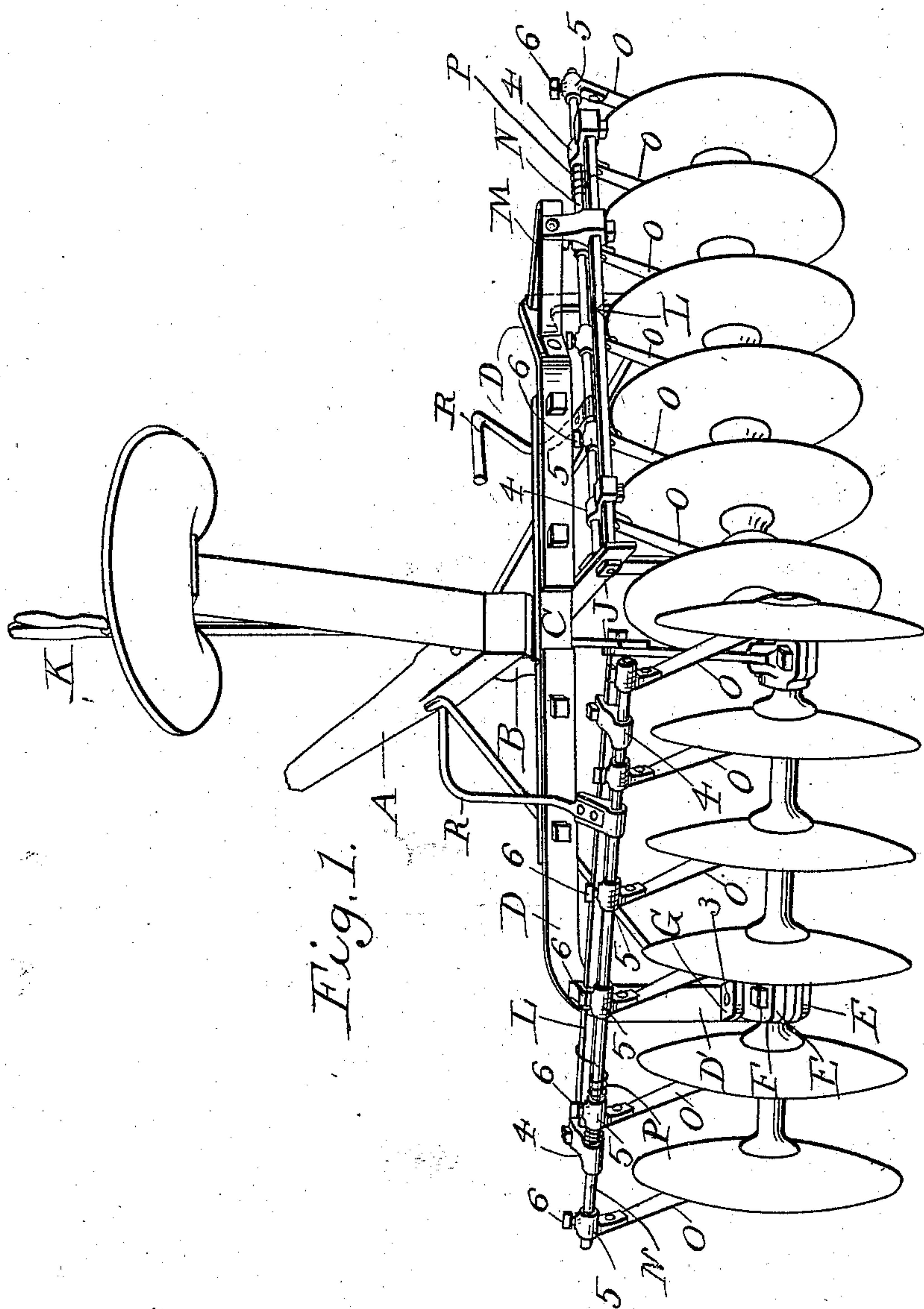
(No Model.)

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R. K. SWIFT.  
DISK HARROW.

No. 550,661.

Patented Dec. 3, 1895.



Witnesses  
C. C. Burdine  
D. E. Burdine.

Inventor  
R. K. Swift.  
by John G. Manahan  
his Attorney

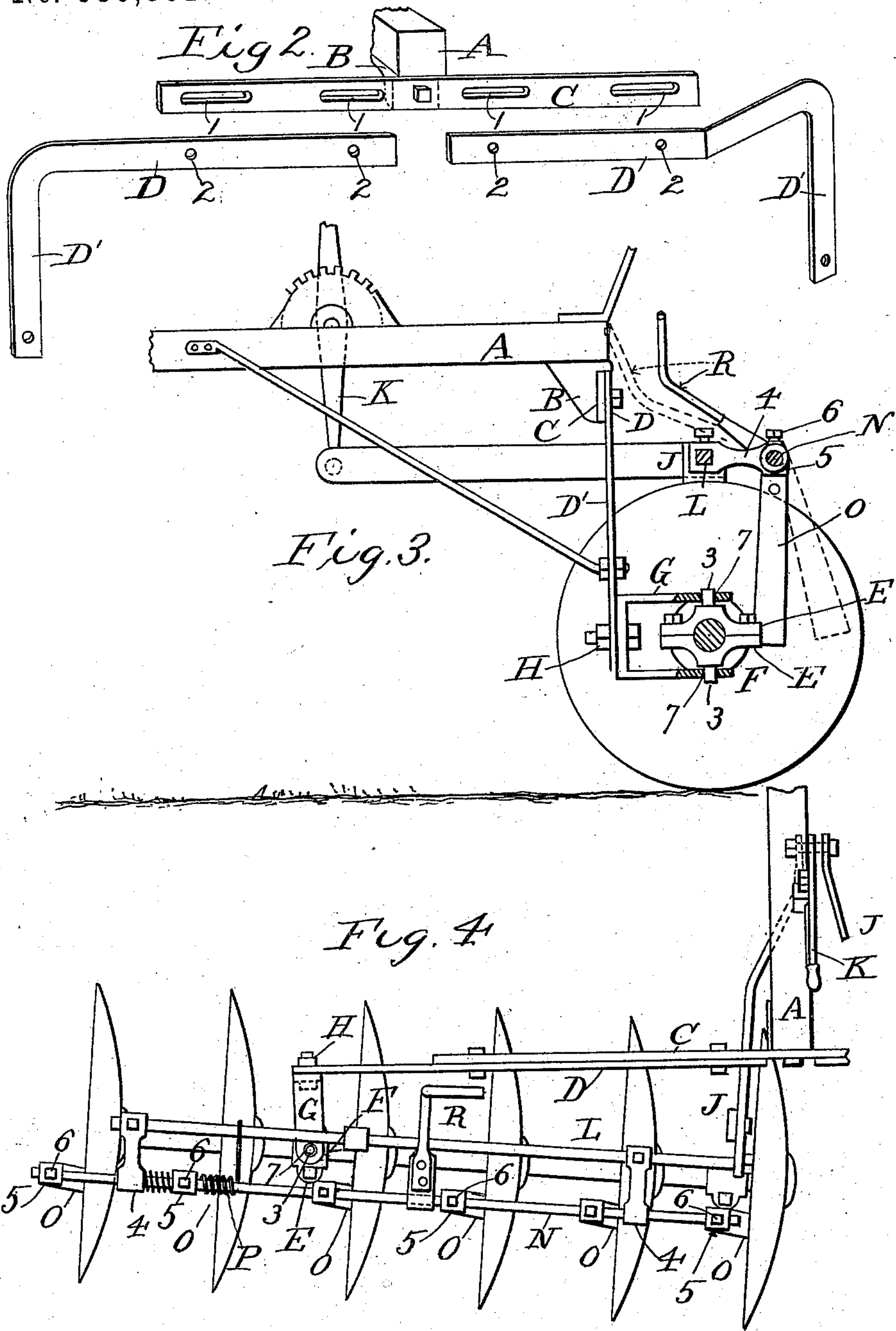
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# UNITED STATES PATENT OFFICE.

R. K. SWIFT, OF STERLING, ILLINOIS.

## DISK HARROW.

SPECIFICATION forming part of Letters Patent No. 550,661, dated December 3, 1895.

Application filed December 14, 1894. Serial No. 531,797. (No model.)

*To all whom it may concern:*

Be it known that I, R. K. SWIFT, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Disk Harrows; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has reference to improvements in disk harrows and pertains, first, to certain novel mechanism for changing and adjusting the mutual relation of the disk gangs; second, for attaching the disk gangs to the frame of the machine with the requisite flexibility, and, third, in the peculiar construction and operation of the disk scrapers.

My first improvement is attained by the use of two bars, each connected at one end to the disk gang and at its inner portion adjustably attached to the cross-bar of the machine.

The second improvement is accomplished by a very simple double pivoting of the disk gangs upon the dependent ends of their aforesaid adjustable bars, respectively.

The third improvement consists of a rocking scraper-shaft provided with elongated steel scraper-blades, flexible and adjustable in themselves. A coiled torsional spring is seated on the scraper-shaft in such manner as to normally hold the lower end of the scraper-blade near the center of the disk, and when by pressure on the foot-lever, seated on said rocking shaft, the ends of the scrapers are oscillated toward the periphery of the disk upon the removal of the foot, the blades are by said spring returned to their normal condition.

All of the aforesaid improvements result in the production of a very simple, cheap, efficient, and easily-handled disk harrow, and are illustrated by the accompanying drawings, in which—

Figure 1 is a perspective of a machine embodying my invention. Fig. 2 represents details of the central and lateral bars of the frame of the machine. Fig. 3 is a detail of

the attachment of the disk gang to one of the aforesaid end bars. Fig. 4 is a partial plan of one of the disk gangs exhibiting the mode of seating the scraper-bar.

Similar letters and figures indicate similar parts in the several views.

A is the tongue of the machine, near the rear end of which there is suitably bolted the block B. To the rear end of the block B and transversely of the machine there is suitably bolted the metallic cross-bar C, set edgewise and provided with the slots 11, having their elongation transversely of the machine.

D D are metallic bars bent, respectively, at near their central portion into a substantial right angle, and thus have each a horizontal portion and a dependent portion D'. In the horizontal portion of each bar D there are formed two or more bolt-holes 2 2, adapted to register with the slots 1, and by means of suitable bolts inserted in bolt-holes 2 and slots 1 each bar D is adjustably seated on the bar C, the horizontal portion of the bar D lying along the rear face of and parallel with the bar C, with the vertical portions of the bars D extending downward, respectively, beyond the ends of the bar C.

Fig. 3 is an end view of the attachment of the disk gang to the bar D. E E are respectively the upper and lower halves, suitably bolted together, of the box F, which is suitably clasped around the axle of the disk gang. On the upper and lower surfaces of the box F there are formed pintles or projections 3 3, which are respectively projected through openings 7 in the upper and lower sides of a clevis G. The latter is seated in a vertical plane and pivotally attached to the rear face of the lower end D' of the bar D by means of a horizontal bolt H. The box F has pivotal movement in a horizontal plane in the clevis G, and the latter has an oscillatory movement in a vertical plane transversely of the machine, by means of its pivotal attachment, through the medium of bolt H, to the bar D. There is thus afforded to each disk gang the necessary compound movement to permit it to be set at any angle with the line of movement of the machine and also to allow each disk to adjust itself vertically to the inequalities of the ground. The inner end of each disk gang is adjusted and held by the usual



adjusting-bar J, attached at its rear end to the inner portion of the disk gang and at its forward end to the lower end of the usual vertical adjusting-lever K.

5 L is a bar seated above each disk gang parallel therewith and suitably attached at its inner end to the adjacent bar J and near its outer end to the bar D.

As the machine shown is of the type in  
10 which one disk gang is set in advance of the other, on the right a triangular bar M is attached to the outer portion of the bar D, where the latter is bent forward to give the disk gang connected therewith a sufficiently  
15 forward position to clear the other disk gang, and the bar L, in the case of the right disk gang, is attached to the bar M. A rocking-scraper shaft N is pivotally attached to the bar L by means of the clips 4 4. The bar L  
20 and shaft N are parallel, the shaft N being behind on the left disk and in front on the right disk. Scraper-blades O are projected downward from the shaft N in such position that their lower ends normally rest against the  
25 concave faces of the disks just in the rear of the hubs of the latter. The extreme lower ends of the blades O are adjustably seated on the shaft N by means of the sleeves 5 5 and set-screws 6 6 therein. An expansion-spring  
30 Q is seated upon the shaft between the clip 4 and the sleeve 5, so as to hold the scrapers against the disks. A torsional spring P is suitably seated on the shaft N to hold the blades O in said normal position. A foot-lever  
35 R is at its rear end rigidly affixed to the shaft N and projected forwardly to within convenient reach of the driver. As the driver bears down on the front end of lever R, the lower portion of the shaft N is rocked toward  
40 the rear and thereby the lower ends of the scraper-blades O moved radially from their normal position to the periphery of the disk, where their further movement is arrested by the contact of the lever R with the bar D. As  
45 the lower ends of the blades O sweep across the disks to or from the periphery of the latter, they meet the upwardly-moving portion of the latter successively at every portion of the area of the concave side of said disk. The normal  
50 position aforesaid of the blades O being in contact with the face of the disk at the rear of and near the hub of the latter, all incipient accumulations of earth around the hub of the disk are precluded. The blades O are made of  
55 spring-steel, and as they are swung, as aforesaid, toward the periphery of the disk the concavity of the latter causes the pressure of the blade O against the side of the disk to increase toward the periphery of the latter.  
60 The maximum of accumulation of earth will

be near the periphery and the adhesion there will be the strongest, by reason of the resistance of the ground. Therefore the maximum pressure of the blades O is at the locality of greatest resistance thereto. The spring P  
65 also assists to force the engaging ends of the blades O against the contiguous face of the disk, and there is therefore the co-operation of two springs in the contactual pressure of the ends of the blades O—that of the coiled  
70 spring P and the resiliency of the blades O themselves. Also the spring-blades O, projecting, as they do, diagonally across the portion of the interval between the disks, prevent, in a measure, any loose material being  
75 carried over the disk-axle so as to be lodged or wound thereon.

I have constructed a full-sized machine embodying my aforesaid invention, and the same operates satisfactorily and is readily  
80 and easily handled.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1: In a disk harrow, the combination of the  
85 tongue A, transverse bar C rigidly attached thereto, and provided with slots 1, bars D provided with openings 2, and adjustably seated on bar C and provided with dependent ends D', one end of one of the bars being bent forward, a  
90 triangular bar seated on said bent portion and disk gangs flexibly seated respectively on the outer and lower extremities of the bars D substantially as shown and for the purpose described.

2. In a disk harrow, the combination with bars D provided with disk gangs, of a bar L suitably suspended above the disk gang, a shaft N parallel to bar L and pivotally supported thereby, blades O constructed of  
100 spring steel and placed with their lower extremities flat against the concave face of the disk near the center of the latter, a coiled torsional spring P seated on shaft N adapted to hold said blades in the position last aforesaid, and lever R rigidly seated on shaft N and adapted to rock the latter, and thereby swing the engaging ends of the blades O toward the periphery of the disks, the end of the lever being adapted to engage with the bar D  
105 and stop its further movement in that direction, substantially as shown and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

R. K. SWIFT.

Witnesses:

JOHN G. MANAHAN,  
HENRY C. WARD.